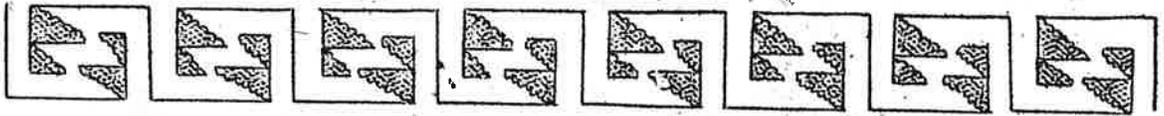
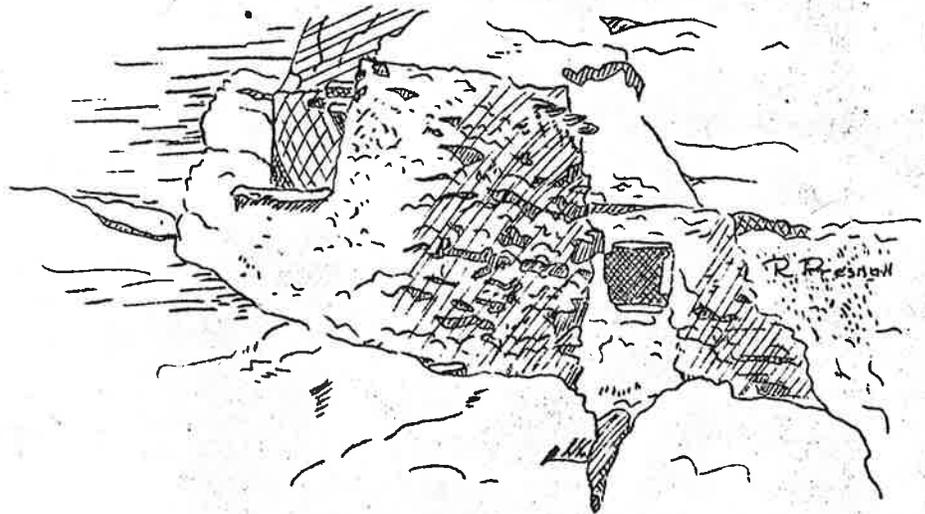


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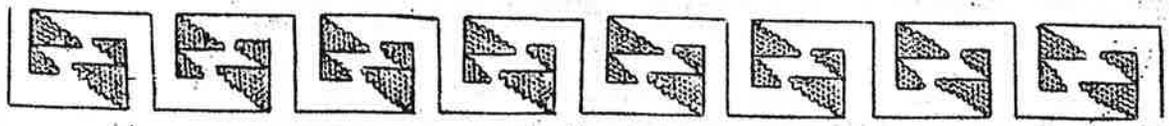


Zion and Bryce Nature Notes



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SPECIAL NOTE TO ARCHAEOLOGISTS

Please bear in mind the fact that the brief general outline and description of prehistoric remains as given in *March Nature Notes for Zion National Park*, are drawn from the survey of a comparatively few sites over a small area, unfinished excavations and a few test trenches; they are therefore tentative. Several different pottery types have appeared in sherd collections since this article was prepared. Several of these late collections are from sites that appear to be superimposed or have sites in juxtaposition. Of course, due to field conditions, discussion of pottery types is from general appearances rather than the varying and specific characteristics. An attempt at definite classifications or correlations would be premature at present.

Ben W. Wetherill

U. S. DEPARTMENT OF THE INTERIOR
National Park Service
Zion and Bryce Canyon National Parks, Utah

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This bulletin is issued monthly for the purpose of giving information to those interested in the natural history and scientific features of Zion and Bryce Canyon National Parks. Additional copies of these bulletins may be obtained free of charge by those who can make use of them by addressing the Superintendent, Zion National Park, Utah. PUBLICATIONS USING THESE NOTES SHOULD GIVE CREDIT TO ZION-BRYCE NATURE NOTES.

F. P. Patraw, Superintendent

C. C. Presnall, Park Naturalist

TABLE OF CONTENTS

Summary of Investigations by Zion National Park Archaeological Party	Page 1
Camp Laboratory	Page 10
A Brief Description of an Indian Ruin Near Shonesburg, Utah	Page 13

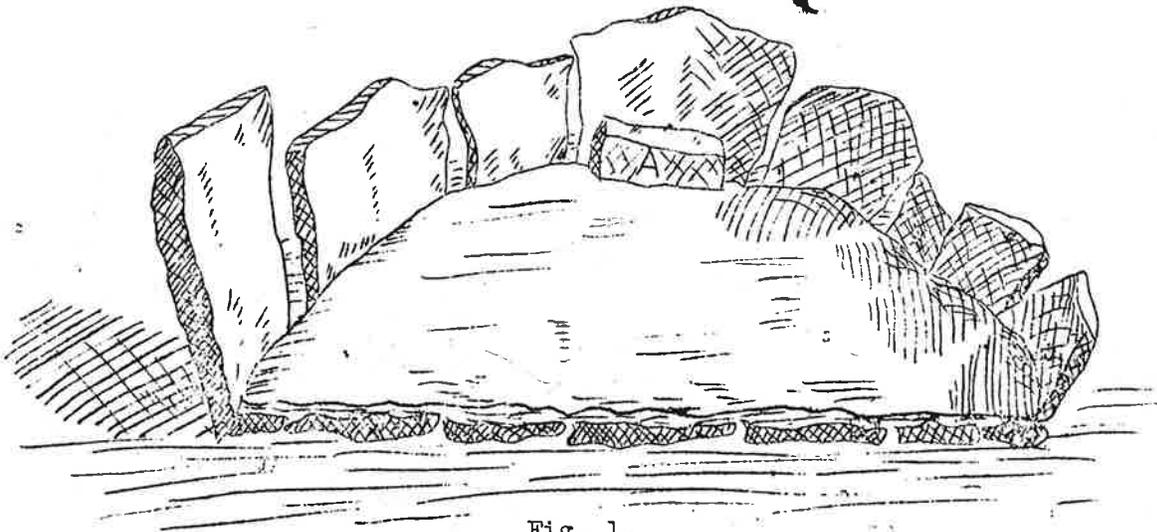


Fig. 1.

SUMMARY OF INVESTIGATIONS BY ZION NATIONAL PARK ARCHAEOLOGICAL PARTY

By Ben W. Wetherill

Recommendations by Mr. P. P. Patraw, Superintendent of Zion and Bryce Canyon National Parks and Civil Works Administrator for National Park and National Monument projects in Utah, has made the archaeological investigation being carried on in Zion National Park possible. Mr. Patraw's truly scientific attitude in support of the Zion National Park Archaeological Party and the enthusiastic help and sympathetic support of Mr. Clifford Presnall, Park Naturalist, are making it possible to collect the maximum of scientific data and survey as large an area as time will permit.

To accomplish the utmost in an archaeologically unknown area, an archaeologist must first reconnoiter to locate the sites present and determine, as far as possible from surface evidence, those likely to be key sites for excavation; and to get a general idea of the physiography in order to be able to understand the ecological conditions under which the prehistoric inhabitants lived. While there are variations in methods that have been developed by the authorities who have carried on extensive archaeological surveys, usually the results sought are practically the same, namely, distribution, nucleus and density of cultures, and location of sites. (1-11)*

(* Numbers refer to reference in attached bibliography.)

The data synthesized from tests on three sites, excavation of one and a general survey of twenty-one (including two groups of petroglyphs) scattered along the Parunuweap Canyon for a distance of about seven miles above its confluence with the Virgin River, indicate three definite prehistoric cultural periods. Three sites that appear to be representative of these periods have been chosen for testing and excavation. At present it seems impractical to attempt classification of the sites in this area in the usual terms, considering the elasticity needed due to complex cultural distinctions, the great distance from the archaeologically better known centers of Pueblo cultures, and the incomplete data available. For convenience in discussing the periods determined in Zion National Park, they will be designated as Type 1, 2 and 3 in succession, beginning with the earliest. In view of the inadequate data of this area all deductions made here are subject to revision.

The four most important elements of Southwestern cultural chronology are: tree-ring dating of charcoal from burned houses or wood preserved in dry caves; stratigraphical evidence of chronological positions of sites; cross-dating by analogical comparisons of criteria of the various subareas; and intensive analysis within an area. While tree-ring dating, discovered by Dr. A. E. Douglass (3) of the University of Arizona, is accurate back to about 700 A.D., it has its limitations in that it is not applicable to other than timber of coniferous trees and has not, as yet, been carried back to the earlier periods. Owing to the generally equal progression or retrogression of ceramics and house types within subareas, and their imperishable qualities they are the two most reliable criteria of cultures. Physical types, basketry, textiles, and worked stone are important elements, but they are not always obtainable. The variations in mortuary customs between cultures and subareas often makes skeletal material hard to find. Time has destroyed such perishable material as basketry and textiles that may have been left in open sites, and dry caves are relatively few. Apparently the utilitarian nature of worked and chipped stone made it slower to change from period to period, therefore it is not as reliable for a criterion of culture.

Excavation work started lately by the Zion National Park Archaeological Party in a dry cave under the north rim of Parunuweap Canyon, has produced parts of two skeletons scattered through the fill covering an area approximately ten feet in diameter, apparently scattered by carnivorous animals and rodents. Also there were found pieces of crude, unfired clay bowls or placks with juniper bark tempering (5-12-14), lower part of female figurine (5-13-16), fragments of basketry, bits of fur wrapped string, cotton cloth, a broken arrow and several hundred potsherds representing at least two periods. Excavation of a small section of the cave floor down to a depth of approximately three feet has revealed two periods of occupation and apparently the ash stained fill continues on down to a depth of several feet. Material from at least two periods found in the fill over the middle of the cave floor seems to have been stirred together by pot hunters and rodents, down to a depth of from 18 to 24 inches. It is hoped that this excavation, with datable charcoal from a ruin in the open nearby, will definitely establish the chronological position of at least three periods represented in this area and show evidence of an earlier period.

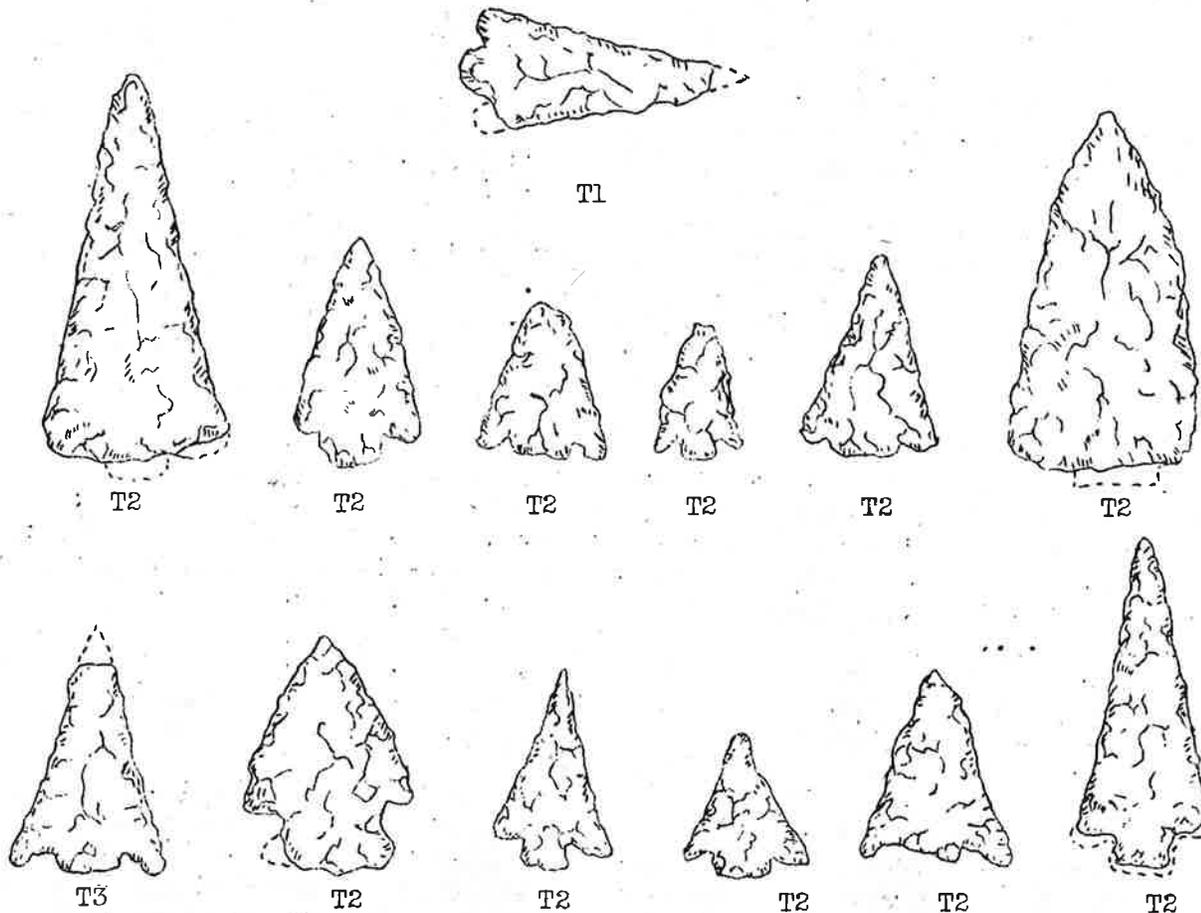


Fig. 2

In figures 2 and 6, and also at the beginning and end of the article by Smith, we have attempted to show the types of stone work which we have found in this area. The letter "T" followed by a number is the Type number of the site from which the specimen was taken. (8-5-13).

Space will not allow for detailed descriptions of pictographs and petroglyphs here. The predominating types found are anthropomorphic (some kachina) human hands, mountain sheep, and similar naturalistic figures. Anthropomorphic (some square shouldered figures), human hands, and bear or dog like figures appear on the back wall of the cave now being excavated. For anthropomorphic figure see the headpiece of Cannon's article. (13-16-17).

The earliest house type excavated is a slab lined structure (cist) 7 feet 4 inches (floor measurement) in diameter. (5-15). (See Fig. 1 which shows a cross-section of this structure.) Seven of these structures (from 4 feet 10 inches to 9 feet in diameter, surface measurement) are scattered along the top of a low ridge of red shale and gravel rising from the floor of Parunuweap Canyon. (Two other similar structures have been excavated showing practically the same characteristics.) The area covered by this site is approximately 56 feet by 160 feet. Thin sandstone slabs 1 inch to

3 inches thick and varying in length from 14 to 38 inches were placed, sloping slightly from the upper edge in to the floor, around the interior of the pit. The floor was paved with similar slabs and plastered over with clay; this clay running up onto the base of the walls. A phenomenal feature of this structure is the rectangular stone set in abode on the floor against the interior of the wall on the south side of the room (see Fig. 1A). The floor of this pit is approximately 14 inches below the existing ground level. Stones taken from the fill of this structure and scattered around the outside may indicate that a wall of coursed masonry and abode extended up 1 to 2 feet above the surface. Although no evidence of the superstructure has been found, it seems likely that it was a conical shaped structure of poles, covered by abode or loose earth. The small average sizes of these structures and the absence of firepits in the three pits cleared seem to indicate that they were used for storage pits. However, by putting a few live coals in a container on the floor of the larger of these structures and covering the entrance, they could have been kept warm enough for sleeping quarters even in the coldest weather. A large circular slab-lined pit-house near the center of the site, similar in wall construction to the smaller structures excavated, which is in the first stages of excavation, was undoubtedly used for living quarters and supports the hypothesis that the smaller structures were used for storage. (5-15).

Mr. Smith's detailed description of Site S2 in this issue is an adequate description of Type 2 houses. (2). The general size of the above ground rooms and the lack of firepits indicate that they were used for granaries.

Rooms of Type 3 were exposed by washes which cut through the 3 to 9 feet of silt covering the site. The remaining walls of the two rectangular rooms excavated, which withstood the flood action of the water, are horizontal masonry laid in heavy abode. The rooms have mosaic floors of sandstone slabs apparently partly covered by clay plaster. The distance between the two opposite walls of room 2 still in position is 9 feet, which distance apparently indicates the width of the room. Practically the same conditions indicate the width of Room 3 to be 7 feet 3 inches. Room 3 has "base boards" of comparatively small sandstone slabs along the base of the interior side of the remaining walls.

The description of Type site 2 by Smith in this issue shows that the few features of house construction that have been carried over from house Type 1 to house Type 2 are: the sandstone slab lined bench of the circular subterranean room, the sandstone slab "base boards" along the interior of the walls of six rooms and eight bins, the mosaic floors of small sandstone slabs in 6 of the rooms of the tier of rectangular store rooms surrounding the court and the rectangular stones set against the interior of the southerly wall near the middle of Rooms 1 and 2 and Bin 2. These three features are exemplified in slab structure 1 (see Fig. 1) excavated on Type Site 1. Sandstone slab "baseboards", flagging floors and slab-lined cists seem to have been handed down to the later Type Site 3 as seen by the floors of Room 2 and 3, the slab "base boards" along the interior of the remaining walls of Room 3 and the slab lining of Cist 2.

POTTERY

Due to the lack of many laboratory facilities in the field, the following descriptions of pottery are from unaided observations.

The original surface colors of pottery Types 1, as represented by sherds, generally range from a light gray (many with a buffish aspect) to a medium clear gray color. The gray paste has a high average content of coarse crystalline tempering which is conspicuous on the surface. The surfaces of these sherds often show marks that appear to have been made by a brush having various sized straws. The light colored sherds have a speckled or "freckled" appearance, depending on the size of the tempering granules showing through the surface. The few (highest percentage of decorated in collection noted is approximately 3%) di., blurred, brownish-black decorations of Type 1 pottery have been applied over a very thin white wash or directly over the floated interior surfaces of bowls. The predominating design elements are fine lines and dots (see Fig. 3). The exceptions to the above description of Type 1 pottery are: two small sherds having very light red (pinkish) paste and surface color with practically the same grade of tempering material as the gray sherds described above. Many of Type 1 sherds are heavily carbonized from use over fire. (5-7-8).

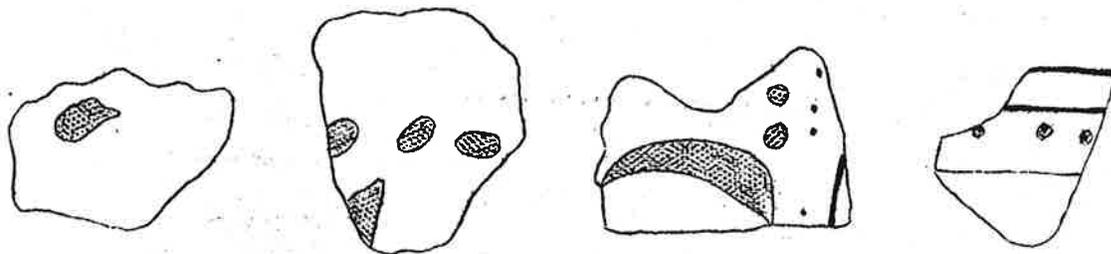
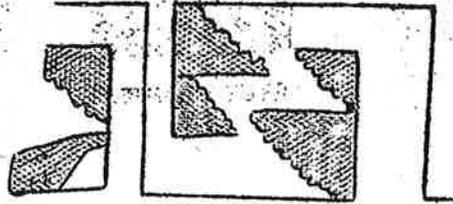


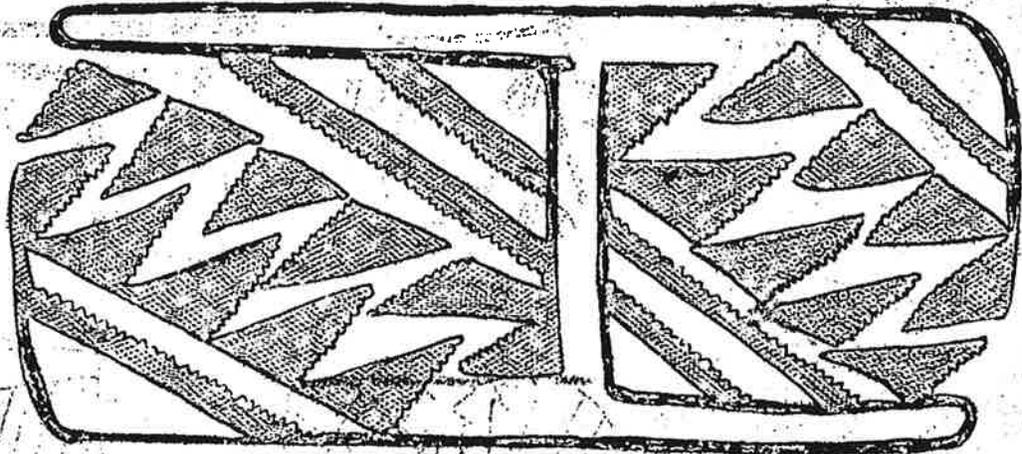
Fig. 3.

The most conspicuous characteristics of Type 2 pottery are the black-on-white and black-on-gray designs of balanced figures in band formation, connected by comparatively wide lines, with components of solid triangles and lines having one ticked side or "pendent dots", and black lines and solid figures. (See Fig. 4.) These designs on bowls run across the interior from rim to rim or in a band around the interior of bowls with the upper lines running around the edge of the rim. Small solid figures and lines, some of which have "pendent dots", were applied on the interior of jar necks. (Fig. 4.) Decorations were applied directly over floated gray surfaces and over surfaces having a white wash or a thin white slip. No exterior decorations, either on jars or bowls, have been noted. The normal color of the paste of Type 2 sherds is medium gray. The surface colors vary from a light buffish gray with a reddish tinge (apparently from the red soil with which they have been in contact) to a medium dark gray (except those having a coating of carbon from use over fire). Light colored sherds have the same speckled appearance described above under Type 1 pottery and due to the same causes. Coarse crystalline material, coarse to medium fine sand, and

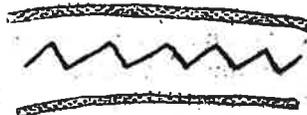
apparently some potsherds were used for tempering. Although practically all surfaces were floated and many polished, tempering material is usually conspicuous on the surfaces. Occasional sherds appear to have been made by the paddle and anvil method of manufacture. (4-7-8-9.)



Band design encircling the interior of bowl just below rim.



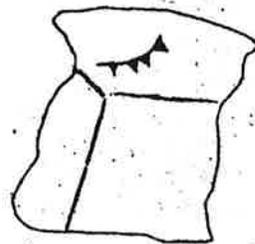
Band design which crosses the interior of bowl from rim to rim.



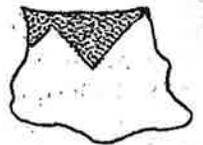
Interior Band



Interior Band



Design on interior of Jar Neck



Rim Design

Fig. 4.

Some of the characteristics of Type 3 pottery are: its highly polished surfaces, creamy white slips, and its black-on-white designs, corrugated wares, black-on-red, Proto-Kayenta (Tucsayan) type polychrome, and sherd or fine sand tempering. All of these elements are characteristic of Tucsayan (Flagstaff) and Kayenta areas. (7).

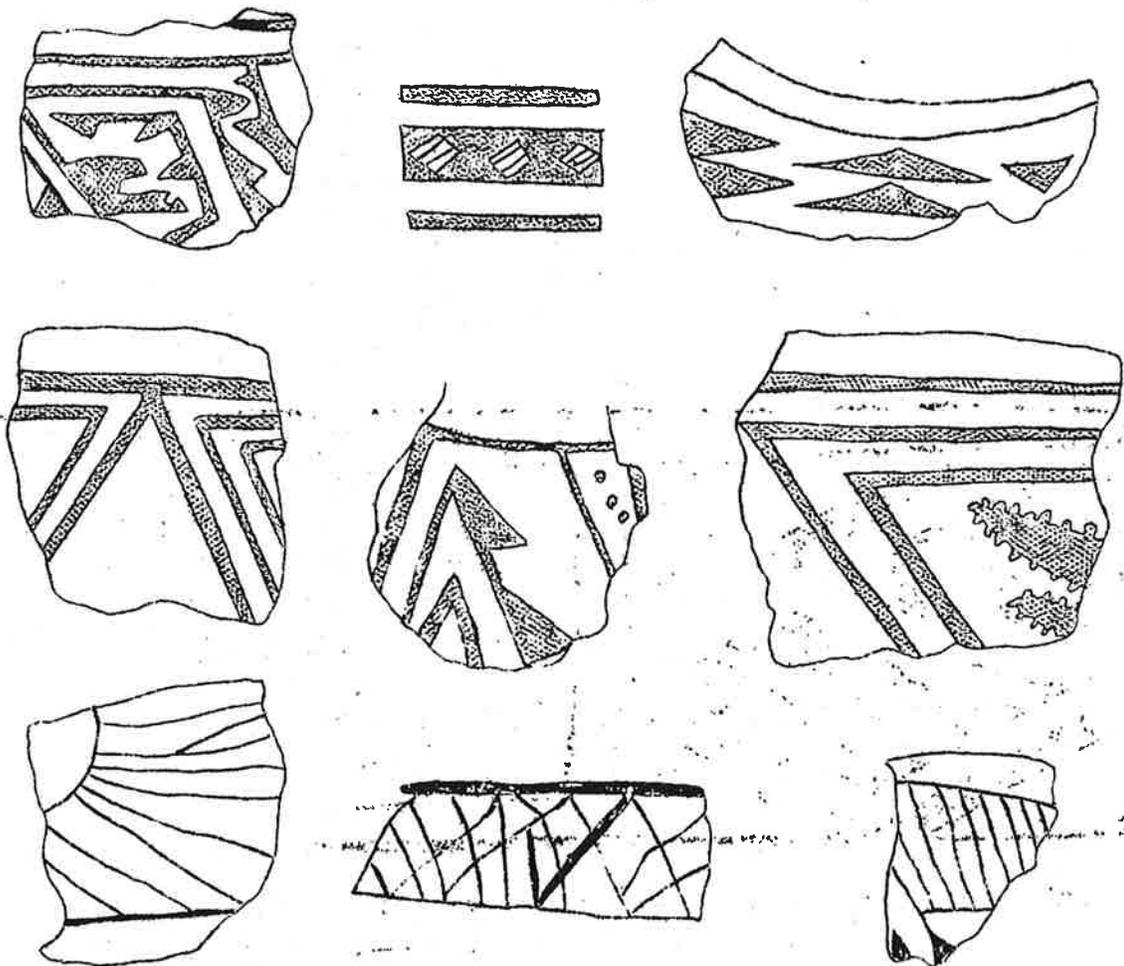


Fig. 5.

A cursory comparison of Type 1 and Type 2 sherds seems to show many characteristics in common, but an intensive study reduces these to two or three common characteristics. Some of the advances or changes made in the technique of manufacture are: The reduction of coarse crystalline temper or the substitution of finer sand and some sherd tempering, practice of floating or polishing surfaces, the application of a fairly thick white wash or slip and the well developed black-on-white and black-on-gray designs. The common gray colors; the use of coarse crystalline tempering in Type 1 sherds and some of Type 2 sherds (mostly plain ware) and the rough surfaces of Type 1 which in a lesser degree is also characteristic of some Type 2 sherds give these two types a somewhat similar appearance. Fugitive red (a deep red paint, or powder, which rubs off easily and was applied promiscuously over the surfaces of vessels) occurs on surfaces of both Type 1 and Type 2 pottery. (7-9-10-13-16). Undoubtedly persistent research in this area and the surrounding country will clarify the chronological relationship between Type 1 and Type 2 sites, in ceramics as well as architectural relationships.

While the better made sherds of Type 3 pottery show a high state of development, many of the associated plain ware and black-on-white types show the natural stages of development from Type 2 pottery plus influences from the centers of Pueblo culture.

The absence of Pueblo I fine lined black-on-white designs and banded necks, the presence of well developed Pueblo II type designs and houses found on Type 2 sites, and the absence of red wares usually associated with these Pueblo II type designs indicate selective diffusion. The absence of Pueblo I pottery types and Pueblo II red wares, and the presence of Pueblo II black-on-white designs and the fugitive red, found over much of the Northern periphery and in the Tucson (Flagstaff) area, and the basically Basket Maker III features found on Type 2 sites, and unbaked clay figurines found associated with Basket Maker III sites over a wide area in the Southwest, illustrate the cultural complexities of this area and strongly suggest peripheral lags. (12-13-16). However, to definitely establish the cultural and chronological relations and correlate the prehistoric remains of this area with those of the areas near the nuclei of Pueblo cultures, sites showing stratigraphical positions, datable wood, and skeletal material must be found.

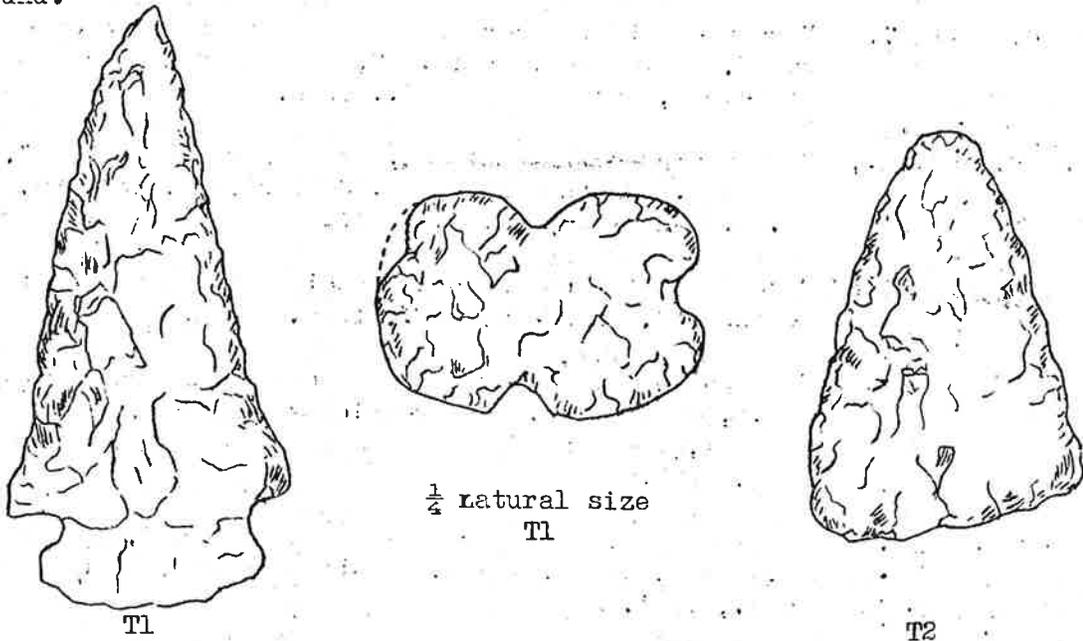
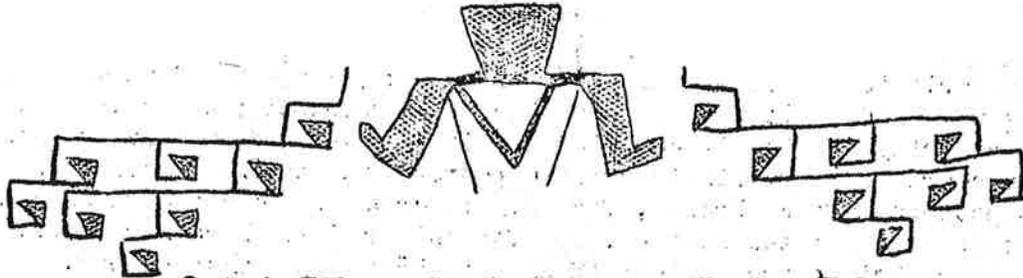


Fig. 6.

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CAMP LABORATORY

By Grant G. Cannon

One phase of archaeology, although glorified by the term laboratory work, is nothing more nor less than plain dish washing. Don't think that I mean K. P. work around the camp, for I refer to the treatment of sherds before they are catalogued. Yet strangely enough, though an archaeologist would never tell his wife this, the work has a real fascination for one who is interested in pottery. The sherds are brought into the laboratory and the depth from which they were taken is carefully noted with the site number. Then they are washed and as the dirt on them turns into mud and is scrubbed away, the design shows through - designs which might be called "just designs" by some people but which are of vital importance to the archaeologist in aiding him to classify the site.

The layman often wonders why so much attention is paid to ceramics and why pottery is used as a criteria in classifying unknown sites, and above all, why archaeologists insist upon working with pieces, even very small pieces, of pottery, often to the exclusion of complete specimens. Pottery is one of the few elements of culture that will withstand the deteriorating effects of moisture and decay for a long period of time. It is not that the archaeologist prefers to study pottery, but merely that he is somewhat limited in the artifacts which remain for him to study. Then too, pottery has a wide distribution which makes comparisons possible, for the archaeologist has long since cast aside the cliché, "comparisons are odious", and has found that only in this way is he able to correlate the site that he is working on with other sites in the region.

At first it may seem odd to find that different culture periods in the southwest clung slavishly to definite types of pottery decoration; that in Basket Maker III they used narrow lines with "cross ticking" and a profusion of dots, or that in Pueblo II wide lines, solid triangles, pendent dots and corrugation were the mode. That is, it may seem odd until we recall some of our own standardized decoration. Who can't remember the period in wall-paper decoration when striped walls were seen in every bedroom, or that mercifully brief period when wild animals and tropical birds shocked our visual sensibilities?

Sherds are studied more than complete pots for the same reason that pottery is better known than basketry; there are more of them. Another reason for the study of sherds is that it has been found that there is a

wide variation in the manufacture of the clay or paste from which the pots were made. It was necessary to add a tempering material to the natural clay to give it cohesion and it has been found that everything from coarse sand to finely crushed pottery was used. To study the paste the pottery must be broken, for only in crude undecorated wares can the paste be seen on the surface, and for this reason sherds are used, for even hard boiled archaeologists hate to break museum specimens.

The usual method in beginning the working of a site, where it is possible, is to take a surface collection of the broken pieces of pottery. Tests made by Gladwin, Spier, and other eminent archaeologists have proved that a very close approximation of the entire finds can be made by such a collection. A surface collection is taken from the entire area covered by the site with a view of getting all the sherds, or, when the quantity is such as to make this impractical, a given area is marked off and every sherd within this area is gathered. The sherds are then brought into the laboratory and washed and segregated according to types: plain gray, black-on-white, corrugated, red, black-on-red, and polychrome. The numbers of these types give percentages that we can confidently expect to find when the site is excavated.

It is interesting to work in the laboratory on pottery and other artifacts which are the final outcome of the accumulated knowledge, skill and toil of these early peoples. Washing the sherds, dipping them in acid to remove lime from their surface, noting any decoration, we naturally wonder about the person who last worked on that piece of pottery. What was she like, what were her aspirations, her fears, her passions, her sorrows, or could she possibly have been a he?

An unusual sherd makes a most profound impression on a laboratory worker who handles thousands of "like" sherds. Such a one came in the other day. Its difference was not very marked, merely a slightly polished streak across the sherd which caught the light. At first I thought that it might be a lighter design worked on the smudged background but closer scrutiny soon showed me my error. Then I wondered whether a design could possibly have been polished upon the bowl's surface, but a single sherd cannot prove so much. Then I began to wonder (for I am incurably romantic, as you have doubtless branded me) just why the bowl was made in this particular way, what was the occasion for which it was intended, what, perhaps, the idle prompting that made the potter polish this spot, did the odd bowl seem significant to them as it did to me? The outcome of my wonderings was that I walked the half mile to the site after dinner that night.

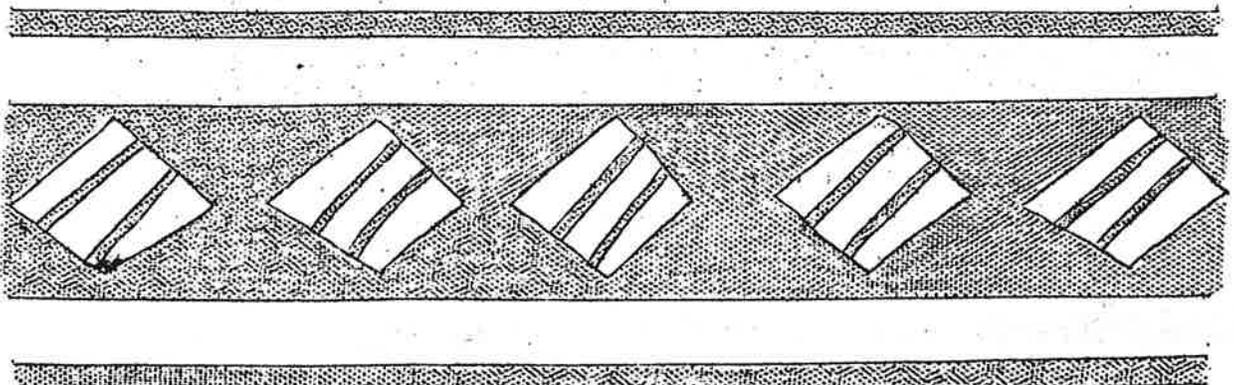
I had been told, of course, that site Z.N.P.6 was a cliff house built on a ledge 150 feet above the canyon floor. And I also knew that it was in a very small box canyon or gully which branched off a few hundred feet from the stream bed. But still I had a breathless moment when I saw the remains of that small group of rooms perched high up there on the canyon wall. From that distance they appeared to be so beautifully symmetrical and so very inaccessible that I was not at all sure that they were real.

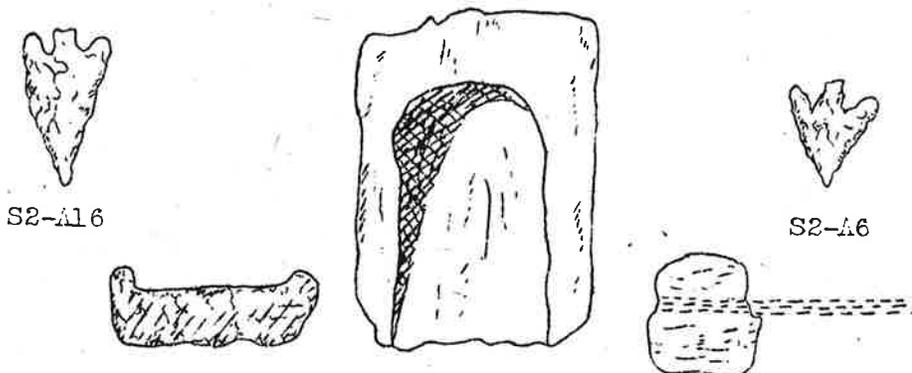
Scuttling up the talus slope and then scaling the cliff, I finally came to where the face of the rock was covered with eagle guano. Climbing still further, I came to the ledge of rock which curves around the U-shaped gully. Along the inner wall I found mud-filled cracks from which issued the acrid smell of rat nests, and in one place I found the tracks of a bobcat. Finally, in the Bend of the U, I came to the abode plastered stone walls which outlined the six small rooms. What had appeared to be a cliff from below was in reality almost a cave for the canyon wall above overhung the ledge forming a roof. It was due to the protection given by this roof that so much of the house still remained. Scattered through the debris which covered the floors of the rooms were corn cobs and husks, a few pine nut shells and acorn cups and even a few wisps of corn silk, all hundreds of years old, preserved by the sheltered dryness of the spot.

What memories those little rooms would hold for a few spirits. Memories of a wan-faced pain-weary woman conceiving at dawn; of empty-bellied seasons of drought, of anger and warfare, love, passion, envy, jealousy, desire, satisfaction. We can't know of their experiences, of course, but we can imagine the suicidal despair of a husband at the death of his wife. And we cannot remove the pottery from a burial without a thought for the care that went into its making or the trembling sadness that accompanied the placing of it there.

Out on the side wall beyond the ledge are a group of figures painted with red and yellow pigments. Who was it risked his life to paint the figures way out there? No one knows, but I seem to see a young man with serious face, clinging to the ledge drawing the pictures of his gods with religious intensity. And safely on the cave floor stands a girl watching with admiration.

It was at this point that I checked my wild romantic fancy and reminded myself that if I were ever going to become a true scientist, I would have to become interested in facts alone and leave fiction to those who could control it. Here I was giving to these prehistoric Indians a modern white man's feelings, mudlin sticky feelings at that. It was late and so I started back but for all my resolves to study the culture and forget the individuals, I find that I have a very friendly feeling for these ancient cliff dwellers, though they are as dimly seen as valleys in the mists of dawn.





A BRIEF DESCRIPTION OF AN INDIAN RUIN NEAR SHONESBURG, UTAH

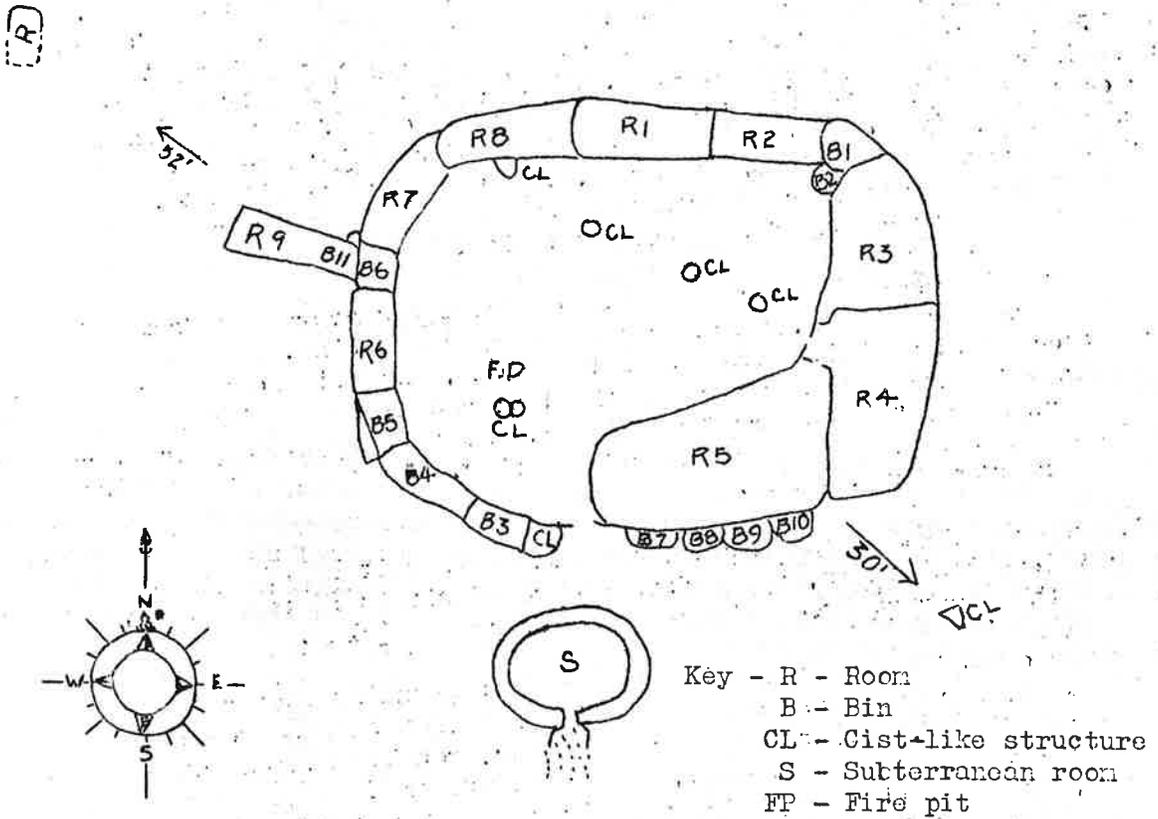
By Elmer R. Smith

The archaeologist is always interested in house types, remains of pottery, and instruments of peace and war. In choosing a place to excavate, he picks a location showing the presence of one or all of these on the surface of the ground. A dim outline of rocks lying in order, or a few potsherds (pieces of broken pottery) scattered over a given area may be the only visible key he has that will aid him in unlocking the secrets of a prehistoric people. It is then only by painstaking, concentrated work that the "scientist of culture" is able to piece together the torn pages of the book he finds embedded beneath the soil or in some old tumbled down ruin.

One of the most interesting sites excavated for Zion National Park is located on a bench overlooking the junctions of South and Shones Creeks with the Virgin River. The first evidences of an Indian ruin were a very shallow circular depression in the surface of the ground outlined in a more or less hit-and-miss fashion by sandstone rocks, and a large number of potsherds scattered over the surface. The depression thus outlined was 42 feet north-south and 51 feet east-west. After mapping the relative locality and making a generous surface collection of broken pottery, the site was trenched and then excavated by the use of hand trowels, small brooms, and measuring rods. These instruments were used instead of larger ones because extreme care must be taken not to disturb anything of importance, and to check and record every utensil and potsherd that is uncovered.

The "ruin" did not take shape nor give much promise of being of interest, at least from the layman's point of view, until a week or more of work had been accomplished. The interest became keener as small flint artifacts, storage bins, and definitely outlined rooms were uncovered.

The site when stripped of its covering of aeolian deposit and human debris assumed the appearance of a tier of rooms with a roughly elliptical ground plan surrounding a court (see map S2). Farther to the northwest, some 52 feet from the main wall, the half of another room was uncovered; and beneath its floor were found a bowl and jar,



Sketch map of Site S2

evidently a cache. To the south 12 feet from the entrance to the court, (see map above) a circular subterranean room nearly six feet in depth below the present ground level, and 15 feet 7 inches (N-S) and 17 feet 7 inches (E-W) in diameter was found. However, the surface covering of this room showed no evidence that a structure of any sort was buried beneath it. Directly to the east from where the eastern walls of rooms 4 and 5 met, was detected a cist-like structure measuring 23 inches by 25 inches and 29 inches deep. This structure was completely lined with slightly slanting sandstone slats. It was thirty feet from the main tier of rooms (see map).

The construction of the remaining walls of the rooms and bins is of horizontal masonry of unshaped and crudely shaped sandstone laid in mortar. The walls that are still standing average about 15 inches in height on the exterior and 9 to 15 inches in thickness. Many of the rooms and bins show evidence of having been plastered, the plaster being made from the red clay of the surrounding region. The plaster after having been made by the Indians was placed over the sandstone rocks and between cracks in the structure, at least on the interior of the rooms. Six of the nine rooms in the tier have perpendicular sandstone "base boards" arranged around the base of their interior, extending in some instances 21 inches above the floor, causing the rooms to take on the characteristic "slab-lined" appearance of a Basket Maker III structure, except that the rooms are rectangular. In this connection, it may be well to mention the fact that one form of wall used by the true Basket Maker III peoples was a circular foundation of large stone slabs on which were laid stones or hand-molded masses of abode interspersed with stone (1). The remaining three rooms are considerably larger and do not have "base boards". All except the three larger rooms are floored with sandstone slabs. There is very little evidence, if any, of lateral entrances to the rooms; however, between rooms 4 and 5 for a width of 2 feet 6 inches and in the wall of room 4 opening to the court for a distance of 2 feet 3 inches there are no walls in evidence, the gaps perhaps (?) acting as entrances. The data collected from the site does not allow for a scientific reconstruction of the rooms and bins.

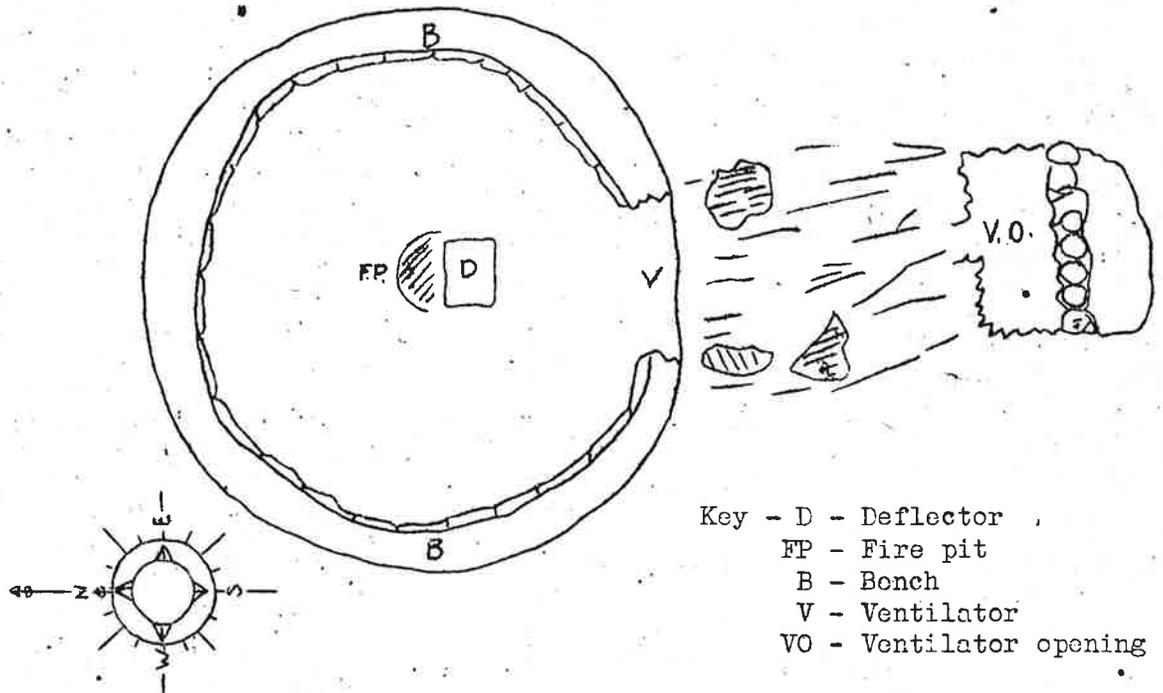
Arranged in the same tier are smaller structures averaging from 3 to 5 feet 10 inches in length, which are evidently small bins. These bins are constructed in a similar manner as the rooms, and all except three have floors of small stones covered with clay, and along the interior of the walls sandstone "base boards" are found. Most of these bins are located in the south and west sections of the tier. There are eleven bins in the entire structure. (Map.)

The room 52 feet to the northwest of the main unit is of the same construction as the others, being "base boarded" with sandstone slabs, and having the floor covered with sandstone rocks and clay.

Perhaps one of the most outstanding and yet puzzling features of rooms 1 and 2 (which are base boarded) and bin 2 (not base boarded) was the presence of long, comparatively rectangular, roughly shaped sandstone rocks 4 to 6 inches in length, set in the floor and against the south wall, or the wall nearest to this direction. These stones average about 18 inches in total length. In two instances, metates were found turned over these projections. Room 7 has not this particular characteristic, but a similar one is present in the form of a fairly large unworked sandstone set against its southeast wall and projecting 14 inches above the floor.

The cist-like structure to the east of rooms 4 and 5 of the tier is completely lined with sandstone slabs set on end and slanting inward as the structure proceeds in depth. The bottom was but 16 inches wide

north to south as compared with the surface width of 23 inches, and 17 inches east to west as compared to 25 inches on the surface. The fill consisted of "fired" soil mixed with many ashes and pieces of charcoal and many small burned sandstone rocks.



Sketch Map of Subterranean Room

The court, as mentioned before, is surrounded by a single tier of rooms and bins with an opening to its interior $3\frac{1}{2}$ feet wide located on the south side of the wall. (Map.) One of the outstanding characteristics of the court is a line of four circular, stone-lined, cist-like structures extending at uneven distances from one another across the north and northeastern sections. These structures average from 3 to 8 inches in depth. They are outlined by small flat sandstones tilted on edge, and the bottoms are "paved" with slabs of sandstones laying comparatively flat. These cist-like structures are not under 2 feet nor more than 3 feet 7 inches in diameter across the top. Two more of the above structures are located a few feet from the fire pit which is slightly to the south of the center of the court. These are very close together, in fact one seems to be overlapping slightly on its neighbor as well as projecting higher above the floor level. (See map.)

The circular subterranean room, as mentioned before, is nearly 6 feet below the present ground level. The sides of the pit to the top of the bench were faced with perpendicular sandstone slabs covered over with red plaster which extended unbroken from the floor, over the slabs onto the bench, and up the sides of the wall to an unknown height. (The plaster has been traced to a height of 16 inches above the surface of the bench.) The bench is from 21 to 24 inches wide and extended com-

pletely around the room, unless it ceased at the ventilator shaft where, if it did continue, it has broken away. From evidence on the abode that has fallen from the side walls, the plaster was placed over a wattlework of sticks running horizontally on the top of the bench along the face of the earthen walls very much as our present-day plaster is laid over lathe work in our modern homes. The wattlework is supported by poles set about 14 inches apart perpendicularly into the top of the bench along the face of the wall. The ventilator is located in the south wall; however, the wall is badly caved in at this point and when cleared of the fallen debris, an opening 4 feet 11 inches wide with a poorly defined floor 10 inches below that of the main room was found. The ventilator opens 10 feet 6 inches to the south exterior of the house. (Map of subterranean room.) The deflector is located directly north of the ventilator 4 feet 11½ inches and consists of a large rock 14 inches by 12 inches set on sandstone spalls and the complete structure covered with plaster or clay. The fire pit which the deflector shields from the draft of the ventilator is a few inches north of its protector.

The specimens gathered from the ruin consist principally of pieces of pottery, a few flint artifacts, two stone mauls (one of porous lava and the other of sandstone), manos and metates. The pottery, in a few respects, shows Basket Maker III influences, but painted decorations have Pueblo II properties strongly marked, such as wide lines, solid triangles, and pendent dots. (See Wetherill.) The metates, in the majority of cases, are medianly grooved or troughed with the trough extending in one direction to the end of the rock (see diagram at heading of article); however, evidence of a few flat slab metates appear associated with the ruin.

The metates are one of the most important cultural traits of the southwest. The Pueblo cultures in the regions of Arizona, Nevada, Utah, New Mexico, and Colorado had their foundations in the raising of maize, and usually the people's life depended on their crops, thus one of the most important things in their homes was the grinding stone. It is said that "until the last few decades, the Pueblo Indian women spent practically their whole lives grinding corn". (2) It may be safely stated that metates were the largest stone utensils employed by the prehistoric peoples of Utah.

There is among the general public a very common and widespread supposition concerning the grooves or troughs in metates that has, from a scientific point of view, no basis in fact. The grooves were not, as commonly supposed, made in the stones by use alone, but were due, in part at least, to an intentional pecking out of the rock. After a period of use the stone would become smooth and the grinding ability of the surface diminished, and it would become necessary to roughen the metate. The roughening process was produced by pecking the bottom and sides of the groove with a small sharp-cornered stone. Roberts says: "At the present time women of the Pueblos in the Southwest may be seen dressing down their metates in the manner just described. In spite of

this fact, however, the idea that a deep groove in a metate shows a tremendously long period of use still persists. Papers, even, have been written by misguided amateurs showing, or rather attempting to show, the many years which would be required in producing such a "trough". (3).

To summarize the significance of this particular site to the work of archaeological reconnaissance in southwestern Utah is far from easy; in fact, such a task at the present stage of work is nearly impossible. The only thing that can safely be said is that it undoubtedly shows, in a few respects, Basket Maker III affinities, and in many others Pueblo II characteristics. (See Wetherill.) It is hoped, however, that a more complete and comprehensive study of the surrounding territory and adjoining regions will succeed in "tying" in this ruin with at least proto-types in other regions of our great Southwest.



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